

Sub Spec  
Approved for  
Entry  
C. Cooley

**SUBSTITUTE SPECIFICATION**

**[0001]** This non-provisional application claims benefit of and priority to German Application No. 103 14 118.9-23 filed March 28, 2003, the disclosure of which is hereby incorporated by reference herein.

**BACKGROUND**

**[0002]** The invention relates to a driving system for a separator having a centrifugal drum with a vertical axis of rotation.

**[0003]** Driving systems of this type are known in many different arrangements, for example, from German Patent Document DE 37 14 627, which shows an arrangement in which a centrifugal drum is placed on the upper free end of a driving spindle which is rotatably disposed below the centrifugal drum by an upper neck bearing and a lower footstep bearing on a drive housing or its supporting elements.

**[0004]** With respect to the state of the art, see also International Patent Document WO 98 / 5 77 52 A1 and German Patent Document DE 34 32 833 A1. British Patent Document GB 255,437, which is more removed with respect to its type and discloses bearing supports on spherically shaped surfaces, as well as German Patent Document DE 175341 C and Austrian Patent Document AT 110574 are also known.

**[0005]** The driving motor may be arranged below the actual driving spindle or by a belt drive laterally offset thereto. In this arrangement, the upper neck bearing is resiliently supported on the drive housing. During precession movements or the like of the driving spindle, it can therefore carry out its radial movement together with it.

**[0006]** In the axial direction, the weight of the centrifugal drum is supported by the footstep bearing on the drive housing. In the radial direction, the footstep bearing is fixed on the drive housing.

**[0007]** A comparable arrangement is known from German Patent Document DE 844 233, in which, for ensuring the radial mobility, one of the bearings is supported in the upward direction in a type of ball bearing surface.

**[0008]** It is also known from German Patent Document DE 62 687 to support the drum weight below the neck bearing.

**[0009]** The use of angular ball bearings for the bearing of driving spindles is known, for example, from Swiss Patent Document CH 484 873. From this document, it is also known to